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EXAMINER	
TON, THAIAN N	
ART UNIT	PAPER NUMBER
1632	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/913,854	ANDREWS ET AL.	
	Examiner	Art Unit	
	Thai-An N. Ton	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *19-24 and 26-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18,25 and 29* is/are rejected.

7)☒ Claim(s) *4, 6, 10, 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1-29 are pending. Claims 19-24 and 26-28 are withdrawn from consideration. Claims 1-18, 25 and 29 are under current examination.

Election/Restrictions

Applicant's election with traverse of Group I [claims 1-18, 25 and 29] in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the claims can be searched without undue burden. This is not found persuasive because the Inventions [Groups I-III] set forth in the Restriction requirement, Paper No. 7, do not relate to a single general inventive concept under PCT Rule 13.1, and lack the same or corresponding technical feature. Note that under 37 CFR 1.475, any international application must relate to one invention only or to a group of inventions so linked as to form a single general inventive concept (PCT Article 3(4)(iii) and 17(3)(a), PCT Rule 3.1, and 37 CFR 1.475). Accordingly, the requirement is still deemed proper and is therefore made FINAL.

Claims19-24 and 26-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group(s), there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 8.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if

one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

Claim 12 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 10. Claim 4 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 6.

When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim is directed to a cell comprising at least part of the cytoplasm derived from an embryonal stem cell or embryonal germ cell combined with a nucleus of a somatic cell. This is non-statutory because

the claimed cell encompasses, any somatic cell found in an individual. As all cells are originally "derived" from an embryonic stem cell, the cytoplasm of any cell would be derived from an embryonic stem cell.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-18, 25 and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are directed cells comprising at least part of the cytoplasm derived from an embryonal stem cell or embryonal germ cell combined with a nucleus of a somatic cell, wherein the cell has at least one pluripotential characteristic, and in further embodiments, the pluripotential marker is the expression of Oct4. In further embodiments, the claimed invention is directed to methods for preparing a cell by nuclear transfer comprising combining at least one embryonal stem/embryonal germ cell with at elast one somatic cell, removing the embryonal/embryonal germ cell nucleus from the combined cell, culturing the cell

under conditions under conditions conductive to proliferation and expansion of said cell, and optionally storing said combined cell under suitable conditions. In further embodiments, the claims are directed to methods of preparing a cell by nuclear transfer by isolation of a cytoplasmic part of an embryonal stem/embryonal germ cell and combining the cytoplasmic part with at least one somatic cell, growing the combined cell in culture and optionally storing the combined cell under suitable storage conditions.

The specification teaches the generation of cytoplasts, derived from ES/EG cells, which are fused with selected somatic cells to form cybrids in order to reprogram the differentiated somatic cell nucleus. This cybrid can then be proliferated to establish pluripotent cell lines. See pp. 6-7, bridging ¶. In particular, the specification teaches that the pluripotent cells express genes, such as Oct4, that are not typically expressed by differentiated cells, and that expression of such genes would provide evidence as to whether a somatic cell nucleus has been reprogrammed. See p. 8, lines 25-28. In particular, the specification teaches the fusion of human EC cells with mouse thymocytes using polyethylene glycol. See pp. 15-16. The resulting heterokaryons were plated and incubated for 2 days, wherein the non-attached cells were aspirated and the remaining cells harvested. The cells were then analyzed for the expression of Oct-4 by PCR. The specification teaches the enucleation of the ES/EG cells to yield cytoplast donors [karyoplasts] [see pp. 17-18], methods for fusing the cytoplasm of one cell with the nucleus of another [pp.

18-19] and the various somatic cells that may be used as nuclear donors [p. 20]. The specification teaches that that in order to test the ability of a human EC cell cytoplasm to reprogram somatic cells, isolated mouse thymocytes were fused with human 2102Ep EC cells to produce heterokaryons which were tested after 2 days, for the activation of Oct4 from the thymocyte genome. See p. 28, lines 9-24. The specification teaches that human Oct4 expression was detected in the thymocyte fused cells, as well as in the mock fusion experiment, which is consistent with the human Oct4 expression in the human EC cells. It was found that mouse Oct4 was detected in only the human-mouse fused cells. See p. 29. The specification further teaches that in a second experiment, where human 2102Ep and TERA1 EC cells were fused with mouse thymocytes, mouse Oct4 was detected in the fusion of the 2102Ep cells, suggesting that the TERA1 cytoplasm did not achieve reprogramming. See p. 29, lines 10-17.

The specification fails to provide teachings or guidance with regard to the claimed invention to show that the cells produced by the claimed method are pluripotent, as required by the claims. Note that the product claims (claims 1-12, 18, 25 and 29) have been included in this rejection because they encompass pluripotent cells made by the claimed method. The specification clearly teaches that the claimed methods would be used to produce pluripotent cells. See p. 7, lines 17-18, for example. However, the only teachings provided by the specification show that the expression of mouse Oct4 in the experiments involving the fusion of the

human EC cell line, 2102Ep and mouse thymocytes indicates that the mouse thymocytes were reprogrammed. However, the specification teaches another human EC cell line, TERA1, was unable to reprogram the mouse thymocytes, as shown by the lack of expression of mouse Oct4. As such, the specification teaches only one example to show reprogramming in mouse thymocytes, as evidenced by the expression of Oct4. However, it is known in the art that the expression of Oct4 is not necessarily an indicator of pluripotency. For example, Monk and Holding [**Oncogene**, 20:8085-8091 (2001)] found that Oct4 is expressed in human tumors. See *Abstract.* Monk & Holding compare the expression of embryo-specific genes in tumor and normal tissues [see Figure 3] and found that the known embryonic gene, Oct4, was expressed in the panel of tumors, and at high levels in blastocyst and cancer cells, but at much lower levels in normal tissue. See Figure 5. As such, the art supports that although Oct4 is recognized as an embryonic gene, the mere detection of expression of Oct4 is not an indicator of pluripotency, because tumor tissues, as well as normal tissues, express Oct4.

The specification further teaches that primate ES cells exhibit a range of characteristics or markers that are associated with pluripotency. For example, specific cell surface markers [SSEA-3 (+), SSEA-4 (+), TRA-1-60 (+), TRA-1-81 (+)], have stable karyotypes, continue to proliferate in culture in an undifferentiated state, and have the ability to differentiate into all three embryonic germ layers [see p. 3, lines 16-23]. Furthermore, the specification teaches that primate ES cell lines

show high levels of telomerase activity [see p. 3, lines 25-29], and that a pluripotential characteristic is a chromosomal methylation pattern characteristic of pluripotential cells [pp. 9-10, bridging ¶], and that the cells when introduced into an animal, have the ability to induce tumors into the animal [p. 10, lines 11-13].

However, the specification fails to provide specific teachings or guidance to show that the methods of the claimed invention would, indeed, produce cells that are pluripotent. The specification's showing of Oct4 expression in the fused heterokaryons is not enabling, as shown *supra*, that the mere expression of Oct4 is not necessarily indicative of pluripotency. The specification fails to teach that the cells of the claimed invention express specific cell surface markers that are indicative of pluripotent cells, that the cells of the invention show high levels of telomerase activity, are methylated in a pattern characteristic of pluripotent cells, or are able to induce tumors when introduced in an animal, as required by the claims. As such, the specification fails to provide an enabling disclosure for the generation and use of the claimed cells.

It is noted that certain of the claims are directed to methods which generate a nuclear transfer unit, wherein the NT unit is further cultured under conditions to proliferate and expand the NT unit. See part (iii) of claim 13, for example. However, it is well known in the nuclear transfer art that activation of the resulting nuclear transfer unit must take place in order to effect further development; however, the claims do not provide such steps. Dinnyés *et al.* [**Cloning & Stem**

Cells, 4:81-90, 2002] report on the state of the art of somatic cell nuclear transfer state that, "NT is a complex procedure and each step effects the overall efficiency. The unpredictability of the technology due to biological variation of the recipient oocytes and the donor cells is difficult to control. Therefore, standardization of the steps is important in order to obtain consistent results." [See p. 83, 1st column, 2nd full paragraph]. With particular regard to the importance of the activation of oocytes, Dinnyés *et al.* state that, "In NT, the lack of sperm-induced fertilization steps necessitate the application of an artificial activation in order to trigger further development." [See p. 83, 2nd column, last paragraph].

Furthermore, with regard to claim 7, the claim is directed to a cell comprising at least part of the cytoplasm derived from an embryonal stem cell or embryonal germ cell combined with a nucleus of a somatic cell, wherein the cell express Oct 4. The claim, as written, describes a nuclear transfer unit wherein the NT unite expresses Oct4. The specification fails to provide teachings or guidance to show that the nuclear transfer unit, as claimed, would indeed express Oct-4. For example, the specification teaches the heterokayon fusion of human EC cells and mouse thymocytes, the cells were first fused and then plated and incubated for 2 days. After 2 days, the non-attached cells were aspirated and the remaining cells were analyzed by PCR for the expression of Oct-4. See pp. 15-16. The specification teaches that the expression of Oct-4 indicates the reprogramming of a somatic cell nucleus to an ES/EC cell like state [see p. 28, lines 16-19]. The specification teaches

that, "Following fusion to combine a differentiated cell and an ES/EG cell, with prior or subsequent removal of the ES/EG cell nucleus, it is necessary to provide appropriate conditions for the re-programming of the differentiated cell nucleus and the subsequent proliferation of the resulting RPES [Reprogrammed Embryonic Stem] cells." See p. 24, lines 15-18. As such, the specification provides support for cells cultured from the NT unit that express Oct-4, however, the specification fails to provide sufficient teachings or guidance to show that the nuclear transfer unit itself would express Oct-4, as the specification clearly teaches the growth and proliferation of the original nuclear transfer units for 2 days before analysis for Oct-4 expression.

Accordingly, in view of the lack of specific teaching or guidance provided by the specification with regard to the pluripotency of the cells produced by the nuclear transfer methods, other than the mere expression of Oct4, the state of the art, which teaches that Oct4 is expressed in normal, cancerous and embryonic tissues, the requirement for activation of the nuclear transfer unit to produce a successful nuclear transfer, it would have required undue experimentation for one skilled in the art to make and use the claimed invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1, as written, is unclear. The claim is directed to a cell comprising at least part of the cytoplasm derived from an embryonal stem cell or embryonal germ cell combined with a nucleus of a somatic cell. It is unclear what is being combined with the nucleus of a somatic cell, part of cytoplasm derived from an embryonal stem cell? An embryonal stem cell? The claim is further unclear as it reads on a cell *in vitro* and *in vivo*. Thus, it is unclear if the claim is directed to an isolated cell, or a cell inside of an animal? Claims 2-18, 25 and 29 depend from claim 1.

Claims 4, 6, 8-10 and 12 recites the limitation "said pluripotential characteristic" in lines 1-2 of the claims. There is insufficient antecedent basis for this limitation in the claim. Claim 7 depends from claim 6.

Claim 5 recites that the cell, "has the capacity" to proliferate in continuous culture. This phrase is unclear because it is unclear whether these characteristics actually occur or that the cells could potentially do these described things. "The capacity" implies a latent property and the conditions for the latent property must be clearly defined. Therefore, it is unclear if the latent property is ever obtained.

Claim 9, as written, is vague. The claim recites that the cell, "includes the presence of a chromosomal methylation pattern characteristic of pluripotential cells". This is unclear because it would not be expected that all types of pluripotent cells would express the same methylation pattern. For example, would adult pluripotent stem cells have the same methylation pattern as other pluripotent stem cells? Clarification and/or amendment to the claim is requested.

Claims 13-15 recite the term "/" (e.g., embryonal stem/embryonal germ). This renders the claims vague and indefinite because the term "/"is intended to further limit or expand the claim. Claim 17 depends from claim 13; claim 16 depends from claim 15.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Chang *et al.*[Mol. Biol. Med 7:461-470 (1997)].

The claim is directed to a cell comprising at least part of the cytoplasm derived from an embryonal stem cell or embryonal germ cell combined with a nucleus of a somatic cell.

Note that the term "derived from" as broadly written, encompasses cytoplasm from any cell, as all cells are derived from embryonal stem cells.

Chang teaches primary skin fibroblasts. See p. 462, 2nd column, 1st ¶. As such, the fibroblasts contain cytoplasm derived from an embryonal stem cell and a nucleus of a somatic cell.

Accordingly, Chang anticipate the claimed invention.

Claims 1, 4-6, 10-12, 18, 25 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans *et al.* [**Nature**, 292:154-156 (1981)].

The claims are directed to a cell comprising at least part of the cytoplasm derived from an embryonal stem cell or embryonal germ cell combined with a nucleus of a somatic cell. In further embodiments, the cell has pluripotential characteristics that includes the expression of at least one selected marker of pluripotential cells, the cell can proliferate in continuous culture in an undifferentiated state for at least six months, and can induce tumors when introduced into an animal.

Note that the claims recite that the cytoplasm is "derived from" an embryonal stem cell or embryonal germ cell, and that this language encompasses cytoplasm from any cell, because all cells are derived from embryonal stem cells.

Evans teach the generation of pluripotent cell lines which are isolated from mouse blastocysts. The cell lines have normal karyotypes, can be maintained for over 30 passages *in vitro*, and when injected into mice, produced tumors. See p. 255, 1st column, ¶s 1-2. The cells as taught by Evans anticipate the claimed invention because the cytoplasm from these cells are derived from an embryonal stem cell.

Note further that claims 25 and 29 are directed to a kit comprising the cells of claim 1 (or 2-12), instructions with respect to maintenance of the cell in culture, and optionally factors required to induce differentiation of the cell into at least one desired tissue type or organ.

In re Gulack (CAFC) 217 USPQ 401 relates to a measuring cup. In the case of *In re* Gulack, the printed matter is considered a patentable distinction because the function of the device depends upon the printed matter itself, which is a part of the substrate; without the printed indicia or numbers, the substrates lose their function. Such is not the case with the instantly claimed kit. The components of the kit remain fully functional absent the printed instructions for use. Thus, the instructions for use included in a kit or article of manufacture constitute "intended use" for that kit or article of manufacture. Intended used does not impart patentable weight to a product. See MPEP 2111.03:

> Intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459, (CCPA 1963).

In the instant case, the claims are drawn to a kit comprising the cells of claim 1 (or 2-12), instructions with respect to maintenance of the cell in culture, and optionally factors required to induce differentiation of the cell into at least one

desired tissue type or organ. The intended use which is recited on the instructions lacks a functional relationship to the kit because the instructions do not physically or chemically affect the chemical nature of the components of the kit, and furthermore, the components of the kit can still be used by the skilled artisan for other purposes (as a whole or individually). Therefore, the kit is unpatentable over the prior art because they function equally effectively with or without the instructions, and accordingly no functional relationship exists between the instructions for use and the kit components.

Accordingly, Evans anticipates the claimed invention.

Claims 1, 4-12, 18, 25 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Thomson [WO 96/22362, published 25 July 1996].

The claims are directed to a cell comprising at least part of the cytoplasm derived from an embryonal stem cell or embryonal germ cell combined with a nucleus of a somatic cell. In further embodiments, the cell has pluripotential characteristics that includes the expression of at least one selected marker of pluripotential cells, the cell can proliferate in continuous culture in an undifferentiated state for at least six months, the cell has the pluripotential characteristic that includes the presence of telomerase activity, and a chromosome methylation pattern characteristic of pluripotential cells, and can induce tumors when introduced into an animal.

Thomson teach the isolation and purification of primate embryonic stem cells that are capable of indefinite proliferation *in vitro* in an undifferentiated state, are capable of differentiation to derivatives of all three embryonic germ layers, and maintain a normal karyotype throughout prolonged culture. The pluripotent cells are negative for SSEA-1, positive for the SSEA-3 marker, positive for the SSEA-4 marker, TRA-1-60, TRA-1-81 and alkaline phosphatase. Thomson teach that the primate cells can continue to proliferate in an undifferentiated state for at least one year. See p. 7, lines 9-32. Thomson teach that tumors formed after injection of rhesus ES cells into the hindleg muscles of SCID mice [see Figure 5].

Note that, as discussed above, the claims 25 and 29 are directed to a kit, comprising the cells of the claimed invention, wherein the intended use of the kit is recited on the instructions, the intended use of the kit does not impart patentable weight.

Accordingly, Thomson anticipates the claimed invention.

Claims 1-4, 6-10 and 12, 18, 25 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Campbell *et al.* [WO 97/07668, published 6 March 1997] as evidenced by Thomson [WO 96/22362, published 25 July 1996] and Pesce *et al.* [**Stem Cells**, 19:271-278 (2001)].

Campbell teaches the reconstruction of mammalian embryos by nuclear transfer, in particular, the transfer of a donor nucleus into an enucleated oocyte.

Note that the enucleated oocyte, as taught by Campbell, fulfills the limitations of the claims in that the oocyte has at least part of its cytoplasm derived from an ES cell or EG cell, because the oocyte is derived from and ES cell. Campbell teach that the nuclear donor can be any type of cell: fully or partially differentiated or undifferentiated cells. See p. 8, lines 13-27. Campbell teach that the mammalian embryos produced by nuclear transfer can then be developed to produce a full term animal. See p. 15, lines 19-29. In particular, Campbell teach the reconstruction of bovine embryos by nuclear transfer [see pp. 25-26], and the production of ovine embryos by nuclear transfer [see pp. 26-28]. Campbell teach that the reconstructed ovine embryos were transferred in a recipient ewe and a live lamb was born. See p. 28 and Table 5. Because Campbell teaches the generation of a live animal from a nuclear transfer unit, Campbell clearly teaches that the nuclear transfer unit can differentiate into at least one selected tissue type [claim 3] and that it is pluripotent.

Note that some of the instant claims are directed to properties that are inherent to pluripotent cells. For example, that the cell expresses a selected marker of ipluripotential cells, which is Oct4 [claims 4, 6 and 7], that the cell includes the presence of telomerase activity [claim 8], that the cell includes the presence of a chromosomal methylation pattern [claim 9], that the cell can induce tumors when introduced into an animal [claims 10 and 12].

> "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its

> properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Thomson provides evidence that pluripotent cells form tumors after injection of rhesus ES cells into the hindleg muscles of SCID mice [see Figure 5], and that the cells are capable of differentiation into all tissues derived from all three embryonic germ layers [see Abstract]. Pesce provides evidence to show that pluripotent cells express Oct-4. For example, they teach that "Oct-4 transcription factor is expressed in mouse totipotent embryonic stem and germ cells." See *Abstract.* They further teach that Oct-4 ortholog genes are highly conserved and have been identified in other mammalian species. See p. 272, 1st col., 2nd ¶. Accordingly, the various properties recited by the claims would be inherent to pluripotent stem cells.

Note that, as stated *supra*, claims 25 and 29, which are directed to kits comprising the cells wherein the intended use of the kit is recited on the instructions, the intended use of the kit does not impart patentable weight.

Accordingly, Campbell anticipate the claimed invention.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thái-An N. Ton whose telephone number is (703) 305-1019. The examiner can normally be reached on Monday through Friday from 8:00 to 5:00 (Eastern Standard Time), with alternating Fridays off. Should the examiner be unavailable, inquiries should be directed to Deborah Reynolds, Supervisory Primary Examiner of Art Unit 1632, at (703) 305-4051. Any administrative or procedural questions should be directed to William Phillips, Patent Analyst, at (703) 305-3482. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is (703) 872-9306.

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